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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/943,890	08/30/2001	Lenny Lipton	300.68	2077

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EXAMINER	
CHANG, AUDREY Y	
ART UNIT	**PAPER NUMBER**
2872	

DATE MAILED: 01/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/943,890	LIPTON ET AL.	
	Examiner	Art Unit	
	Audrey Y. Chang	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 27 October 2003.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 5-21 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 5-21 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Remark

- This Office Action is in response to applicant's amendment filed on October 27, 2003, which has been entered as paper number 7.
- By this amendment, the applicant has amended claims 5 and 12 and has canceled claims 1-4 and 22.
- Claims 5-21 remain pending in this application.
- The objection to drawings set forth in the previous Office Action dated April 23, 2003 is withdrawn in response to applicant's amendment.
- The objection to claims 4 and 12 set forth in the previous Office Action is withdrawn in response to applicant's amendment.
- The rejections to claims 5-7, 9 and 19 under 35 USC 112, first paragraph, set forth in the previous Office Action is withdrawn in response to applicant's amendment.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 5-7, 8-10, 12-17, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Battersby (PN. 6,069,650) in view of the patent issued to Stoner (PN. 6,288,846).**

Battersby teaches an *autostereoscopic display system* (please see Figures 1-2) that is comprised of a liquid crystal display panel (10) serves as the display having a *display screen* and a *lenticular means* (15) with an array of *lenticular elements* (16) together serve as the *lenticular screen* that is aligned in *juxtaposition* with the display screen. Battersby teaches that a *closed chamber that is filled by liquid crystal material* (38, Figure 6) is affixed between the *lenticular sheet* (30) with lenticular elements (16) and the plate (36) (as in Figure 3) such that the refractive index of the liquid crystal material may be changed so that the lens function of the lenticular means (15) is changed between the state of being a lenticular screen to create the autostereoscopic display and the state of being a transparent sheet to create ordinary 2D image display, (please see columns 1-2). The change in function is achieved by changing the index of refraction of the liquid crystal material so that it is either miss-matching or matching the index of refraction of the lenticular elements.

Claim 5 has been amended to include the feature that the lenticular elements are facing the display screen. Battersby teaches specifically that the lenticular means (15) could be arranged to have the liquid crystal layer (38) side adjacent to the liquid crystal display so that the flat outer surface of the sheet (30) becomes the output side of the lenticular means. In this arrangement, Battersby teaches that the plate (36) of the lenticular means may comprise a transparent substrate of the liquid crystal display panel. This means that the lenticules are *facing* the liquid crystal display, (please see Figure 3 and column 6, line 64 to column 7, line 1-4). Claims 10 and 20, are rejected for the same reasons.

With regard to claims 9 and 19, Battersby also teaches that the lenticular elements (16) could be arranged to face outwardly away from the display, (please see Figures 2 and 3).

This reference however does not teach explicitly that the liquid crystal material is *introduced into or removed from* the chamber to achieve the changing in function of the lenticular means. **Stoner** in the same field of endeavor teaches that by introducing an optical liquid with a refractive index matching that of the material of optical elements having surface structures into the space or chamber between the

surfaces of the elements the optical property of the surface structures can be altered or disappear completely, (please see the abstract, columns 2-3). Stoner also teaches that a *fluid pump* (52, Figure 5) with the form of *syringe* may be used to introduce or remove index-matching fluid into or from the closed chamber formed between the optical elements so that the optical effect of the optical elements may be altered, (please see Figure 5 and column 8, lines 20-33). Stoner further teaches that different types of fluid handling systems may be used. The *syringe* implicitly includes a *reservoir* for holding the index-matching fluid and a valve for regulate the speed of ministering the fluid. It would then have been obvious to one skilled in the art at the time of the invention being made to apply the teachings of Stoner to modify the autostereoscopic display system of Battersby accordingly for the benefit of using alternative means and arrangement that does not require to set up electric field as for liquid crystal material to change the function of the lenticular means so that more variety of choices of the index matching fluid may be utilized to allow the system be switched between stereoscopic and regular 2D display mode.

With regard to claim 12, these references do not teach explicitly that the optical fluid is a fluoropolymer. However as indicated by Battersby and Stoner, the lenticular screen and optical elements are generally made of polymer material, (please column 1 of Battersby and column 9-10 of Stoner) and the idea is to have the refractive index of the index-matching fluid (or optical fluid) to be substantially the same as the refractive index of the lenticules, it would then have been obvious to one skilled in the art to select the material that is suitable as the index matching fluid. Also fluoropolymer is well known optical material in the art for general optical application it would have been obvious to one skilled in the art to select the material based on its suitability as the index matching fluid.

With regard to claims 13-14, both Battersby and Stoner teach that the refractive index of the optical fluid need to be substantially the same as the refractive index of the lenticular elements.

With regard to claims 15-16, Battersby teaches that the lenticular means (15) or lenticular screen has lenticular elements (16) or lenticules disposed at one side of the substrate wherein the substrate may include glass plate (36, Figures 3 and 6).

3. **Claims 11 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Battersby in view of the patent issued to Stoner as applied to claims 8 and 18 above, and further in view of the patent issued to Goto, (PN. 6,046,855).**

The autostereoscopic display system taught by **Battersby** in combination with the teachings of **Stoner** as described for claims 8 and 18 above have met all the limitations of the claims. These references however do not teach explicitly to include an antireflective coating on another side of the lenticular means. **Goto** in the same field of endeavor teaches a *lenticular screen* (10, Figure 1A) for an *image projection system* such that the light-emitting surface (14) of the lenticular screen is coated with a layer of *antireflection* layer for the purpose of reducing unwanted reflection at the light-emitting surface in order to improve the contrast of the image displayed, (please see column 9, lines 20-25). It would then have been obvious to one skilled in the art at time of invention to apply the teachings of Goto to provide an antireflective layer at the light emitting surface of the lenticular means for the benefit of improving the contrast of the image displayed by the autostereoscopic display system.

Response to Arguments

4. Applicant's arguments filed on October 27, 2003 have been fully considered but they are not persuasive. The newly amended claims have been fully considered and they are rejected for the reasons stated above.

5. In response to applicant's arguments, which state that the cited Battersby reference does not teach that the lenticular elements are facing toward the display device, the examiner respectfully disagrees and

directs the applicant to reasons for rejection in paragraph above and to the cited Battersby reference, (column 6, line 64 to column 7 line 4).

6. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the cited **Stoner** reference teaches a switchable lens that allows the lenticular lens to be switched between state of lens function and state of simple transparent plate which is exactly the same states of the lenticular means needed in the autostereoscopic/2D display of Battersby, one skilled in the art certainly will be motivated to design the display device with different design of the lenticular lens means for the benefit of simply having more options to facilitate the display device. Furthermore, fluid lens is very common lens element in the art. Such modification is certainly within general skill of the art.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208, (will be 571-272-2309, after January 20, 2004). The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 703-305-0024. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Audrey Y. Chang
Primary Examiner
Art Unit 2872

A. Chang, Ph.D.